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BIKEWAYS : DEMAND DETERMINATION

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MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS

BIKEWAYS PLANNING INFORMATION APRIL '75

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DEMAND DETERMINATION FOR BIKEWAY PLANS

DEMAND & NEED DETERMINATION SURVEYS

SAMPLE QUESTIONAIRES:
COMMUNITY-WIDE SURVEY
BICYCLE RIDER SURVEY
SCHOOL SURVEY

In order to help determine the location where bikeways would be most beneficial, your locality should conduct demand and need determination surveys. Samples of the questionnaires you could use have been prepared by the DPW and RPA. Three types of questionnaires have been prepared: one for use in community-wide surveys; one for bicycle rider surveys; and a third for distribution to school age children. These surveys will provide information about traveled routes, intensity of use or related routes, the needs and preferences of bicyclists and other road users in your area, as well as information about the location of bicycle accidents.

COMMUNITY WIDE SURVEYS

ADMINISTER DEMAND SURVEY TO 2-3% OF POPULATION

One method of gauging bicycle demand is by administering surveys to a portion of the overall population of your region. Sufficient accuracy can generally be obtained by using a sample of two to three percent (2-3%) of the entire population in your area. This type of survey is administered to cyclists as well as non-cyclists. Information gathered can be used to measure overall demand for bikeways in the area (both potential and existing). It can also obtain information from non-cyclist roadway users (i.e., pedestrains and automobile drivers) whose perception of the community's needs may be somewhat different from that of cyclists. It must be remembered that these groups also use the roadway and that their perception of the community's needs must be considered as well.

TO CHECK RESULTS USE MORE THAN ONE TYPE OF SURVEY

Several methods of administering this type of questionnaire are considered below; however, in order to make sure that any one distribution method is not yielding distorted results, it is good practice to also conduct a small comparison survey using an alternative distribution method. Thus, if mail distribution is chosen as the primary means of sampling, a smaller sample of telephone responses may be used for testing potential distortion in the mail responses.

Generally speaking, the easiest method of obtaining an unbiased sample is through the telephone directory. For example, if it is determined that an appropriate sample in your locality would be 1,800 and the phone book has 300 pages of entries, then by drawing six names from each page, we will have created a sample of (300 x 6) 1,800 names. When selecting a sample group, it is important to make allowance for those who choose not to answer questionnaires. Thus, in a mailed questionnaire, it is advisable to mail three times as many questionnaires as responses desired. In a telephone or door to door survey, twice as many names should be chosen as responses desired.

SELECT SAMPLE FROM TELEPHONE BOOK

Methods of Distribution

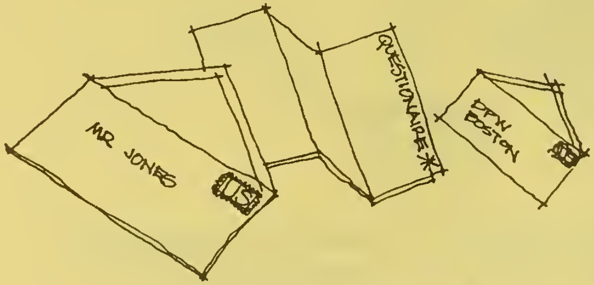
A. Mail

1. Requirements: a) brief (two pages or less); b) prepaid envelope should be included.

2. Advantages: a) low manpower requirements, therefore, lower costs; b) this is a good low-cost method of achieving a large sample.

3. Limitations: a) mail questionnaires usually generate more responses from people with a strong interest in the issue. Thus, the responses may be biased.

4. Expected response rate: 30%

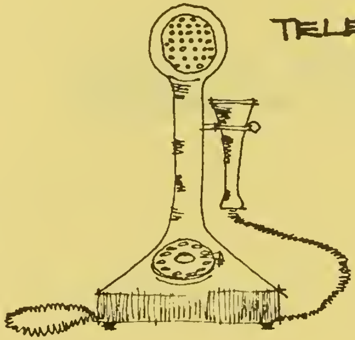


DISTRIBUTE BY MAIL

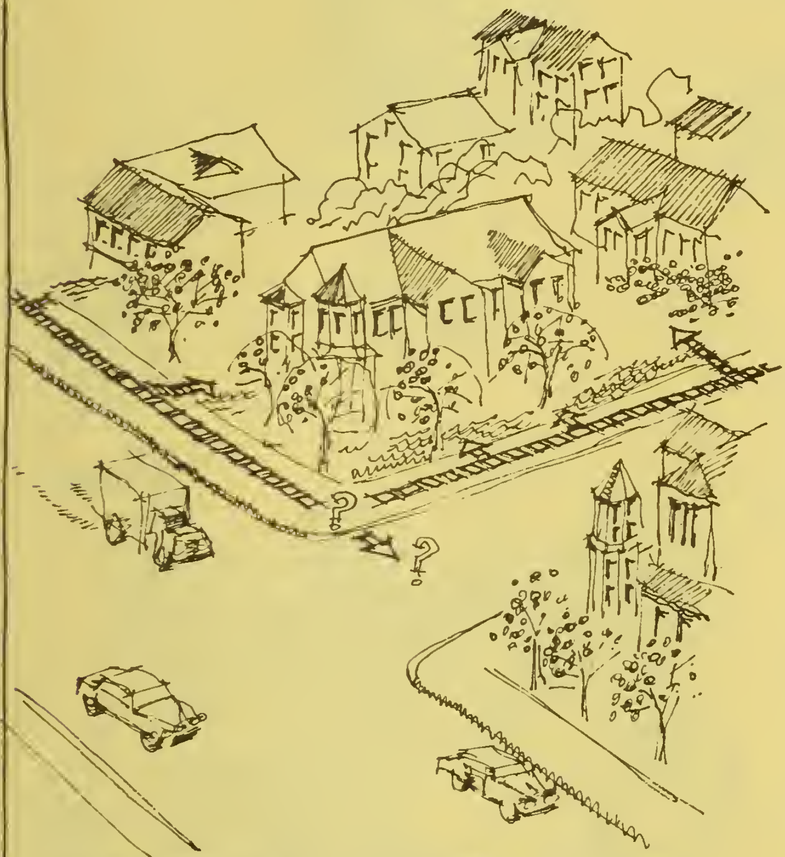
B. Telephone

1. Requirements: a) sufficient funds and manpower to conduct a telephone survey.

2. Advantages: a) assures a large response rate; b) draws responses from a more representative sample of the population; c) all misunderstood questions can be easily explained; d) makes gathering information about entire household much easier.



TELEPHONE SURVEY



DOOR TO DOOR TO DOOR TO DOOR TO DOOR SURVEYS

SCHOOL SURVEYS OR DISTRIBUTION OF HOUSEHOLD SURVEYS THROUGH THE SCHOOLS

3. Limitations: a) telephone surveys are best conducted after business hours when more people are at home. This may be a problem if regular office help is used, but would be turned into an advantage by using volunteers who would be free after working hours to help in the work; b) persons administering the questionnaire should be instructed in proper interviewing techniques so as to minimize distortions resulting from rephrasing of questions, intonation of voice and other interviewer generated biases; c) when interviewing a household in which some members are not available to reply, the ages and sexes of these persons should be recorded. This information will be used later in analyzing the responses.

4. Expected response rate: (depending on time of day) 60-80%

C. Door to Door

1. Requirements: a) this is a time consuming and often costly method of surveying; however, it provides the most reliable results. Both time and manpower requirements with this method are high; b) careful organization will help simplify the application of this technique.

2. Advantages and limitations of house to house surveys are in many ways similar to those of telephone surveys except that somewhat more organizational effort is required to successfully administer this type of survey.

3. Expected response rate: (depending of time of day) 60-80%

D. Surveys of School Age Children

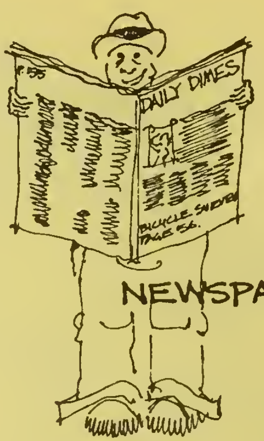
The major advantage of surveying school age children lies in the fact that these surveys can be administered to groups thus saving both time and expense. Since these surveys will help determine the needs of the most vulnerable groups of bicycle users, the results obtained from them will be especially valuable.

1. Advantage: very high response rate; easy to administer.

2. Disadvantages: cover only a portion of cyclist population.

E. Newspaper Surveys

These have been used in some areas to measure demand for bikeways. The DPW does not recommend this technique as a means of gathering accurate information on bikeway demand. However, the public relations value of a newspaper or radio poll should not be discounted and may be used to support information gathered through other techniques.



NEWSPAPER SURVEYS

Bicycle Rider Surveys

In order to measure the intensity of bicycle usage on selected streets, bicycle traffic surveys can be used. Two techniques are available. One is the corridor count. This is a limited technique that offers only numerical data. A more elaborate but much more useful technique is the user street survey which offers information not only about existing use patterns but also about preferences of users as well as perceived risk and frequency of use for a given route or activity.

BICYCLE RIDER SURVEYS

A. Bicycle Traffic Counts

1. Requirements: a) should be conducted along routes determined from preliminary information on usage provided by citizen advisory groups, RPAs and DPW; b) counts should be conducted simultaneously on all routes being surveyed; c) counts should be taken on two separate days to eliminate day to day variations.

2. Advantages: a) inexpensive; b) offers accurate image of current usage.

3. Limitations: a) it will be necessary to recruit volunteers to help man the counting posts since a number of sites will need to be monitored simultaneously; b) although useful, traffic counts only provide numerical data and do not deal with the important questions of perceived risk, preferences and desires of cyclists.

RIDER SURVEYS

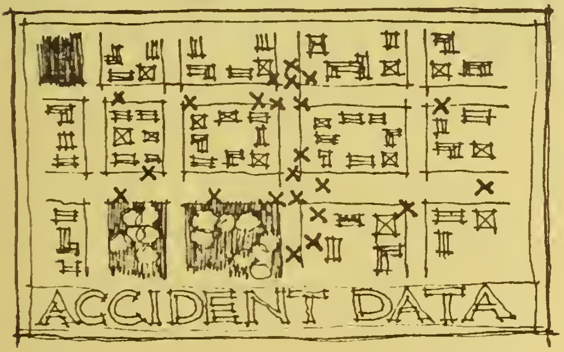
BICYCLE TRAFFIC COUNTS

B. Rider Surveys

1. Requirements: a) this technique can be used in conjunction with bicycle counts or applied separately; b) rider surveys should be conducted along routes determined from preliminary information provided by the CAGs, RPAs and DPW consultants.

2. Advantages: a) technique can provide very valuable information about origins and destinations of cyclist trips, perceived risk of travelling certain routes, as well as insights into local bicycling problems and their possible solutions which only a cyclist can provide.

3. Limitations: a) this method of gathering data will often require recruitment of volunteer help and thoughtful organization of the work.



MAPPING ACCIDENT DATA

ACCIDENT DATA

The third type of information to be gathered deals with the location of bicycle accidents in the study area. This information will be available from the local and state police and will need only be colated for analysis. The following information about bicycle accidents will be needed.

1. Location of accident (as exact as possible)

2. Time of day

3. Day, night, dusk

4. Involving:

   a. automobile
   b. road hazard
   c. no discernable cause of equipment failure
   d. pedestrian

5. Road condition
    a. dry
    b. wet
    c. slippery (ice)
6. Traffic regulations violated (if any)
    a. by auto driver
    b. by bicycle rider
7. Age of cyclist
8. Sex
9. Type of bicycle
    a. childrens
    b. one speed
    c. three speed
    d. ten speed
10. Extent of injury (if any)

ACCIDENT DATA INDICATES POINTS OF CONFLICT & AREAS OF HIGH USAGE